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ABSTRACT

Objectives of the SPICE (School Programs in Career Education) curriculum guides are concerned with the areas of self-concept, dignity of work, change in the world of work, and relevance of school to work. The career education curriculum in the volume presents units which may be taught as separate subjects, incorporated into all areas of the existing curriculum, or used as the total curriculum, with texts as references. Each unit contains suggested assignments and activities in math, language arts, science, and art. The construction unit for grades 3 and 4 examines jobs within the construction cluster and in related fields of construction, such as architecture, interior decorating, crafts, and materials. A 31-page appendix offers a booklist, varied instructional materials, and teaching suggestions. (Author/MF)

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CONSTRUCTI

3-4

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SCHOOL PROGRAMS IN CAREER EDUCATION

SPICE

CE 005 236

Manual for Career Education

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Curriculum Guide

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The staff of School Programs in Career Education would like to express it's appreciation to the teachers of South Knox County who served on the S.P.I.C.E. Curriculum Revision Committee.

K-1-2

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Mrs. Edna Monday (New Hopewell)
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FOREWORD

PHILOSOPHY

The world of work is a dynamic, swiftly changing aspect of modern life. Jobs that are flurishing today may not even exist twelve years from now. Children, whose only exposure to career education is from theri parents, may find themselves left far behind in our competitive, technical age.

The increase change in the job market must be counterbalanced by an increased awareness on the part of students who, heretofore, have waited until their late teens to concern themselves about a career. All education, all school K-12, is a part of the process of building a career.

Students at the middle school level (6,7,8) must frequently make course decisions that will affect their future job plans and prospects. In years past students entering this intermediate stage of their educational development had little if any career orientation and direction. Their selection of courses was often erratic and based upon frivolous considerations such as sports, friendships, and popularity. Later in high school many of these students discovered that they had irreversibly eliminated many of the most desirable careers because they had not taken school or the future seriously.

Children have, for some years, looked upon work with mixed feelings. Many have come to see work as a necessary evil which may eventually be eliminated. Work as a way of life needs a better image. There is not only monetary reward in work but there is also fulfillment and satisfaction. There must be re-created in children a true respect for work as well as an appreciation for a job well done, regardless of the type of work. Children must come to see that there is dignity in all work.

GENERAL OBJECTIVES

To integrate career education concepts into the existing elementary curriculum K-6 in order that students may broaden their knowledge and understanding of careers and develop a true appreciation and understanding of themselves--their abilities, limitations and attitudes, as these relate to a future career.

SPECIFIC OBJECTIVES

Self-Concept

1. To help each student develop the ability to assess himself - his abilities, ambitions, and prejudices, as they relate to a career.
2. To help each student see himself as important and necessary to the community.

3. To help each student appreciate his abilities regardless of the career to which they may relate.

4. To help each student realize that getting along with other people is the key to a successful career and that this comes by first accepting himself.

Dignity of Work

1. To help the student develop an appreciation for work and for the dignity of any job well done.

2. To help students realize that all work is important and necessary.

3. To help students know and accept the fact that workers work for many different rewards and satisfactions and that money isn't necessarily the most important one.

4. To help students understand that any productive worker is to be respected.

Change is Constant in Careers

1. To help students think of the world of work as changing. To help them understand that some jobs are eliminated and that others are created by change.

2. To help students appreciate the many new jobs that have been created by technology and social change.

3. To help students plan for a world of change where they may be retrained many times.

Relevance of School to Work

1. Help students relate school to work and realize that school helps now and will also help prepare for the future.

2. Help students understand that school attendance is a part of the process of developing self-concept and learning to get along with others.

3. Help students understand that basic skills such as reading, writing, spelling, math; speaking are skills which have a high carry-over value where jobs and careers are concerned.

4. Help students recognize that a career must be built slowly and that the school is the best framework within which a career may be built.

5. Help students to understand that the gaining of much knowledge about jobs and themselves is an important part of the process of choosing a career.

The Curriculum

The career education curriculum here presented is developed in such a way as to give the teacher maximum flexibility. Each unit may be an adjunct to the existing curriculum. This is to say, it may be taught as a separate subject. On the other hand, the teacher, if she so desires, may incorporate aspects of arts and science. At the most comprehensive level, the teacher may use the S.P.I.C.E. units as her total curriculum, with texts as references. Each unit contains suggested assignments and activities in math, language arts, science and art.

The units are prepared for multigrade or nongraded classrooms as well as the self-contained classroom. Units are developed in three blocks: K-1-2, 3-4, 5-6. The teacher may use as much or as little of a unit as she sees fit depending upon the capacity and interest of the class. Supplementary materials are contained in the resource kit which accompanies each unit guide. Additional help and materials may be obtained through the project coordinators. The coordinators will assist the teacher in planning her unit, utilizing materials, acquiring additional materials, obtaining resource persons, and aiding to some extent with classroom activities.

The curriculum guide is given as an outline of what might be done in teaching about a particular job cluster. The teacher should feel free to supplement, alter or replace any teaching technique or suggested activity with those of her own. The teacher should also feel free to acquire and use additional materials not contained in the resource kit.

The Teacher

Career education does not represent a new subject. Many teachers have taught career education for years without giving it a name. Career education is any education which attempts to help the child find himself, his abilities, and his ambitions, as well as teaching him something about the world of work and what life is like there - in the real world - outside the classroom - where he must live most of his life.

The only change that need take place in the teacher is a change in emphasis. Instead of simply teaching children to read or write or do math, teach them the purpose in learning these skills. Help them see how these skills are related to later school years and beyond that to a career.

The good career education teacher has other atributes which are always a part of a good teacher - understanding - and a concern for children. This, at the elementary level, may be called guidance. In practice it means patience; it means letting children discover themselves in a way that will be acceptable to them; it means helping each child feel proud of his abilities without feeling inferior because of those he does not possess. It means making a child feel pride in any job or career that interests him; and it means developing among her pupils an appreciation for all kinds of work and all kinds of people.

General Scope

Although students at the lower elementary level have studied the construction cluster, there are certain aspects of this industry that could not be considered. This unit will be building upon the background established in the K-2 unit; however, this background is not a prerequisite. This unit will examine more workers in more fields of construction, such as architecture, interior decorating, crafts, material procurement, etc. The relationship between jobs within the construction cluster as well as the relationship between the construction cluster and other clusters will be considered. Finally, students at the 3-4 level will be able to do more independent study both individually and in groups. They will also be ready to do more interesting hands-on activities.

Concepts

1. There are many fields of construction.
2. Some construction workers build; others supply materials and services.
3. Specialization leads to interdependence among construction workers.
4. Positions are related within the construction clusters.
5. The construction cluster is related to other job clusters.
6. Supply and demand controls the number of workers going into the construction industry.
7. Construction work affects the worker's total life.
8. Individual construction workers differ in their abilities, attitudes, and values.

SCOPE	ACTIVITIES	RESOURCES

I. Construction Fields

Concept: There are many fields of construction.

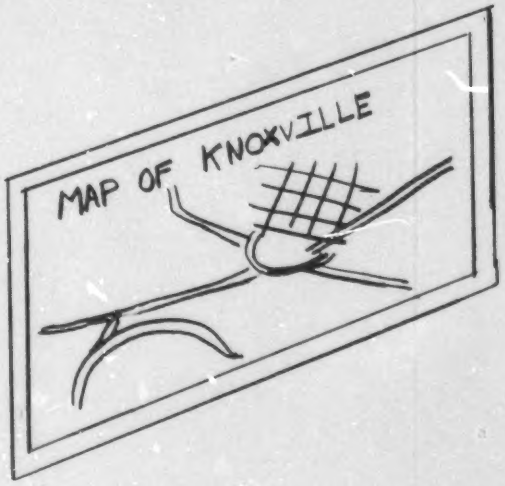
A. When speaking of fields of construction, the student should be guided to see that the construction industry is made up of a number of interrelated components, such as architecture, interior decorating, crafts, material procurement and building.

1. The teacher can begin to build the student's background of knowledge about construction by discussing the many jobs found in the construction industry.

2. The teacher should give the students the chance to tell what they know about construction before she supplies any information to them.

3. The teacher should identify any student whose parent works in the construction industry. During the time that construction is being discussed, these students may be called upon to supply information, bring samples of materials, contact resource speakers (perhaps their own parent) or help plan field trips. The other students will get special recognition when their parent's occupation is discussed. (The teacher should explain this to the students.)

SCOPE	ACTIVITIES	RESOURCES



B. In rewriting the skit the teacher could encourage the students to use "role switching." There could be a woman doctor or architect, etc.

C. The teacher can stress the need for girls and boys to both know construction skills, such as sawing, hammering, etc. The

4. The class could use a map of their own city and pinpoint as many businesses as they can that are directly involved with the construction:

   a. Builder's supply
   b. Ready mix concrete
   c. Brick yards
   d. Septic tanks
   e. Roofers
   f. Fencing companies
   g. Painters

S.P.I.C.E. can obtain a map of Knoxville through the Chamber of Commerce or the Tourist Bureau on Henley.

5. The following skit can be used as a language arts activity. The students may use it as a sample and write their own:

Skit: "Framer, Anyone?"

Framer: "I'm a framer. What in the world does a framer do? I've just been hired as a framer and I don't have any idea what a framer will have to ask someone

Builder's Supply

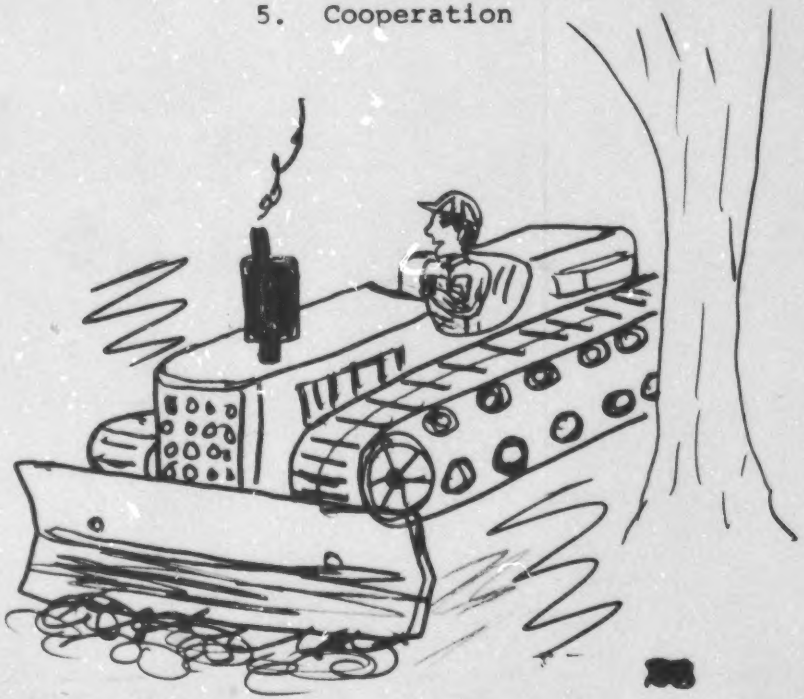
Framer: (Enters, downcast) I've just been hired to be a framer. Do you need one in your business?

SCOPE	ACTIVITIES	RESOURCES

boys will later be taught skills that are considered feminine; however, if the label "bachelor" is added they are usually willing and eager to learn.

D. Many students should be encouraged to take a part in the skit. Role playing teaches many of life's most valuable skills:

1. Speaking
2. Composure
3. Self-confidence
4. Human relations
5. Cooperation



Clerk: Oh, no! Not in the builder's supply business. We sell and deliver all sorts of materials to building sites (where houses are being built), but we can't use a framer here. We have loading men, stock men, truck drivers and estimators, but that's all.

Architect's Office

Framer: (Enter even more downcast) Do you hire framers in your business?

Architect: I'm afraid not, my friend. You must be looking for the underworld headquarters. They are always framing people. Here we design houses, stores, shopping centers, motels, hotels, apartments and all sorts of other buildings, but we try not to frame anyone.

Framer: Thanks a lot. I'll try elsewhere.

Other Activity

Give the students scraps of building materials (wood, nails, etc.) and let them work in groups to create a modern work of architecture.

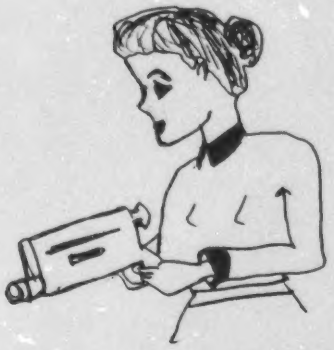
The Power Equipment Company on Alcoa Highway has agreed to let student groups visit. Contact Mr. Tom Tucker.

Books

House by Adler

I Know a House Builder by Bolian

A World Full of Homes

SCOPE	ACTIVITIES	RESOURCES
	Heavy Equipment Company Framer: (Enters and flops down on chair) Manager: Had a hard day, boy? What have you been doing? Framer: I'm trying to find out what a framer does. I was hired as one this morning, but I don't know what to do, what tools to buy or what uniform to wear. Do you employ framers? Manager: Afraid not; here we have heavy equipment. This is a scraper, this is a grader, here is a loader, and this is a bulldozer. There are operators to drive each of these. We have mechanics to work on them and salesmen to sell them, but we don't have any job for a framer. Maybe you should try at the interior decorator's. They make picture frames there.	Language Arts Vocabulary Activity Let the class work in groups of three or four. Give each group three or four words from construction cut up. The group puts them together again. All words should be written on the board for reference to spelling. The class might like to make movies of their skit which is highly recommended. This will let the students see themselves as they really are. S.P.I.C.E. has an 8mm movie camera and projector for this purpose. Call 525-7686.

SCOPE	ACTIVITIES	RESOURCES

E. If the teacher decides to film the skit, a camera team could be set up. Besides the persons who operate the camera, there could be other experts also.

1. The person who puts the film in and takes it out of the camera.
2. The person who labels the film so that there will be a record of what it is about.

Framer: Thanks. I'll do that.

Interior Decorator

Manager: You're a what?

Framer: A framer.

Manager: What in the world does a framer do?

Framer: I was going to ask you that. I thought maybe I made picture frames.

Manager: No. Here we call that man a frame maker. You had better go see a doctor.

Doctor's Office

Dr. Pile (head shrinker) Sit down, boy; sit down!

Framer: Doc, I'm sick. I'm supposed to be a framer, but nobody knows what a framer does. I've been trying to find out all day, and I think I've lost my mind.

Dr. Pile: Easy, boy, easy. We'll find it for you in just a minute. Lie down on this couch and relax. I'm

Grab Bag Activity

Use a brown shopping bag. Put several different building materials or small tools in the bag. Let each student come up and put his hand in the bag. He must identify the first thing he takes hold of before removing it from the bag. No sharp objects please.

The S.P.I.C.E. office should be able to help with some of the materials
525-7686

SCOPE	ACTIVITIES	RESOURCES

3. Prop experts. These are students who make and set up the scenes to be photographed. This involves a good deal of art work, and those students with creative and artistic talent will want to get in on this.

4. Costume experts. These are the students who help the actors and actresses to be dressed for the scene. Those who are interested in sewing, fashion design, etc. should work with this group.

going to put you to sleep (hypnotize you) and ask you some questions. Maybe the answer is buried in your own head.

Framer: I'm getting sleepy.

Dr. Pile: You are talking to your boss. He is telling you about your new job. What is he saying?

Framer: "You will help Hank frame those two houses on Elm Street. And then . . . ."

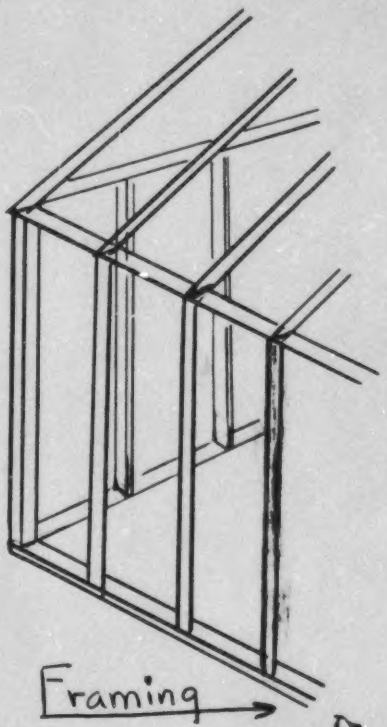
Dr. Pile: Wake up, boy, I have the answer.

Framer: What is it?

Dr. Pile: You are the man who helps put up the frames of new houses. You know those tall pieces of wood the walls are nailed to.

Framer: Thanks, Doc. What do I owe you?

Dr. Pile: Your first month's pay.



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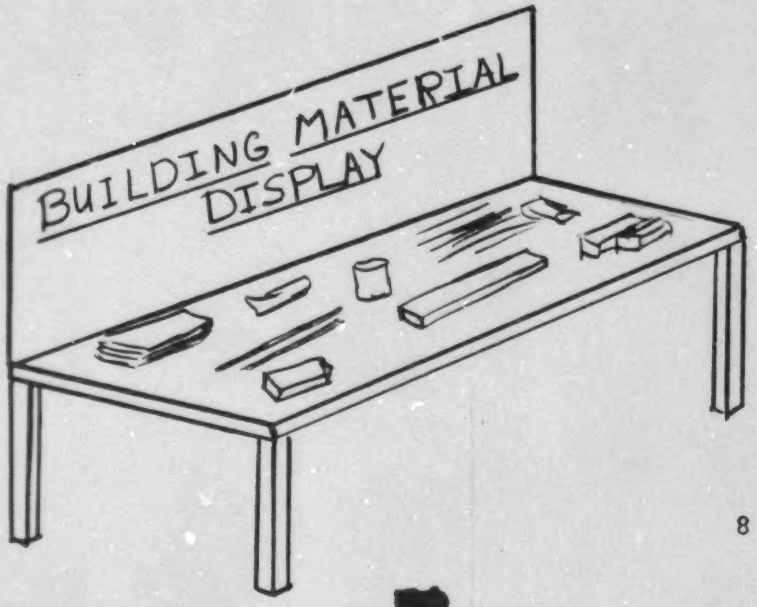
Language Arts: Presenting the skit - oral skills - students could rewrite skit.
Math:
Science: Suggested: Today's Basic Science, "Time and the Stars," pp. 45-60.
Art: Draw scenes from the skit.

SCOPE	ACTIVITIES	RESOURCES
F. It is generally agreed that much of what we learn and retain comes through experiences where we involve our hands (fell), eyes (sight), ears (hearing), and nose (smell). It is imperative that the student have the opportunity to see first hand the things about which he is studying in career education. If the child is only told about these things or sees them indirectly through pictures or film, much of the interest and learning will be lost.	Students could be assigned individual or group projects to investigate the various fields of the construction trade. The student on his own time might carry out certain assignments: 1. Visit a business that is involved with construction: a. Builder's supply b. Concrete block plant c. Hardware store d. Glass store 2. Bring samples of building materials for a classroom display a. Wood b. Carpet samples c. Tile samples d. Vinyl samples e. Other building materials 3. Tape record sounds of construction. This could be done by the class or by a student who has a tape recorder at home. a. Saw b. Drill c. Hammer d. Sander	Grab Bag Charades Place 3" x 5" cards in a brown shopping bag. On each card identify a worker doing a particular job. Each student comes up, puts his hand in the bag, takes a card and then acts out what is on the card. The rest of the class guesses what he is doing and who he is. The winner is the next actor.



SCOPE	ACTIVITIES	RESOURCES

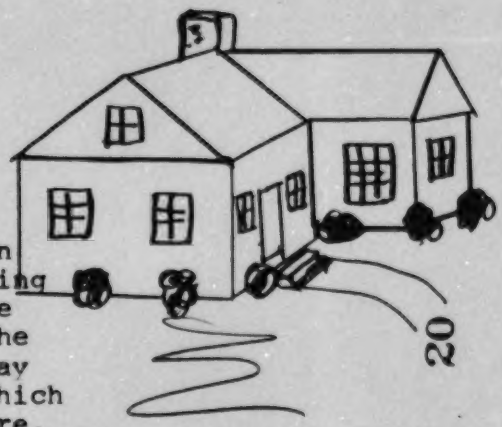
II. Building - Supplying

Concept:	Some construction workers build; others supply materials and services.

4. If a member of the class has an instamatic camera, he could take pictures of construction projects and bring the pictures to school. If the school has a camera, the class could plan a slide program based on construction. They could photograph tools, materials, machinery, houses, workers, etc.
5. List all the construction tools that you have at home.
6. List things you and your father have built.
7. Make a list of the cost of tools that you would like to have and tell how you would use each. Use a Sears Catalogue for prices.
8. Arrange for a field trip for the class to visit a building site or business.
9. Arrange for a resource person.

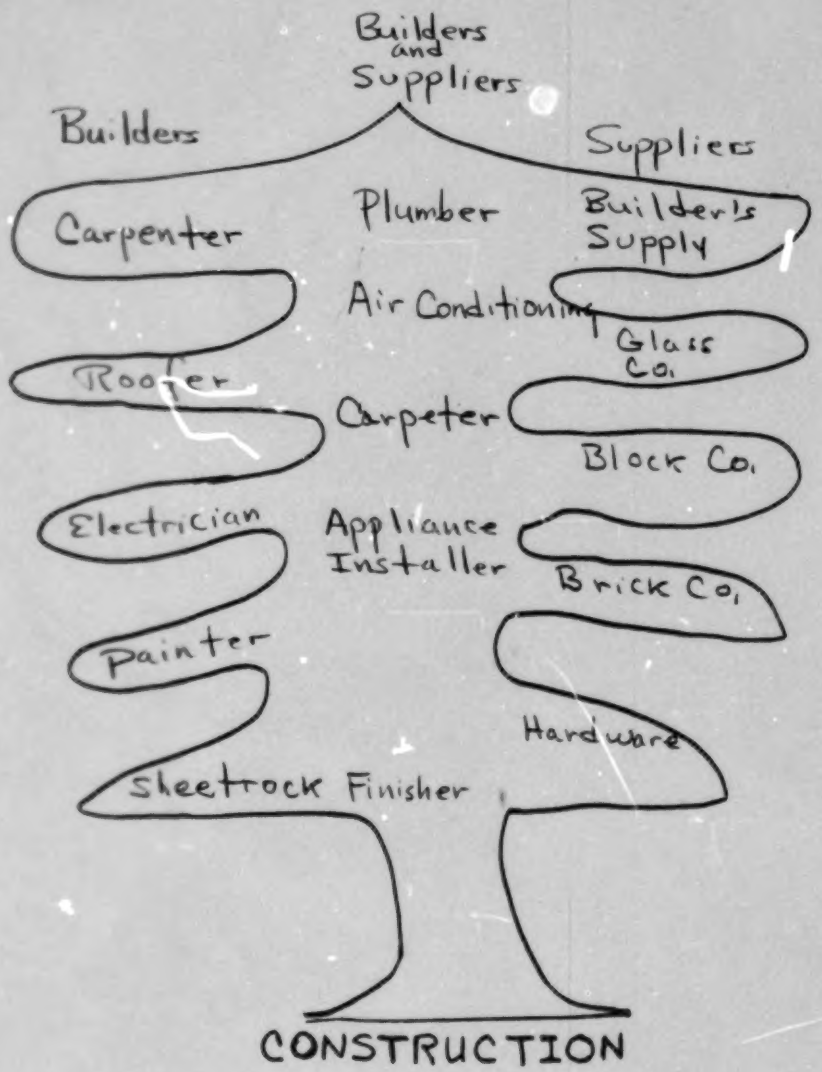
Get special forms for field trips from S.P.I.C.E.

1. Building on the previous concept: "There are many fields of construction," the teacher may begin to distinguish between those who build and those who serve or supply the builder.

SCOPE	ACTIVITIES	RESOURCES
A. Many students probably have a distorted picture of the construction industry. The stereotype of a construction worker is a man in a hard hat walking on a narrow steel beam high in the air. He is a person who is always building. The picture is interesting but not accurate. Many people, such as truck drivers, architects, loaders, heavy equipment operators, time keepers, foremen, contractors, secretaries and others never take a direct part in building; yet, they may be considered as belonging to the construction cluster.	Questions: Oral skills Lang Arts a. Does a builder supply build or supply materials? (Supplies material) b. Does a carpenter build or supply materials? (Builds) c. Does a plumber build or supply materials? (May do both) d. Does an air-conditioning company build or supply materials? (Probably both) e. Let the class make a job tree for construction and place building jobs on one side and supply on the other. There may be jobs about which they are not sure. In this case a member of the class may want to call the local builder's association for information.	Students may design and make model houses from triwall cardboard. Your S.P.I.C.E. coordinator can help you procure  Cardboard for your class and can supply a model for students to go by.

Language Arts: Items eight, nine, ten, eleven.
Math: Count number going, count seats on bus, calculate the time required,
Science: Continue unit on "Time and the Stars."
Art: Draw pictures of workers doing their jobs after field trip.

SCOPE	ACTIVITIES	RESOURCES



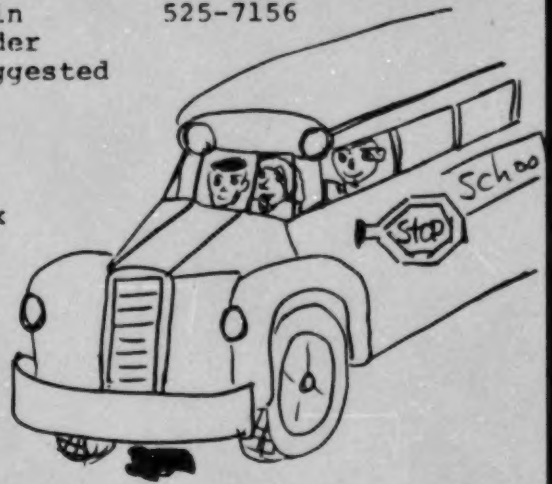
2. Questions to be answered about the above jobs:

   a. Where does each worker work?
   b. Does he work indoors or outdoors?
   c. How much education is needed for the job? Where does he get this education?
   d. What type of machine or equipment does each work with?
   e. What are the work hours per day, per week?
   f. What is the pay per hour?
   g. How much vacation time does each have?

3. This would be a good opportunity to take the class on a field trip to a local supplier and builder. Check the yellow pages in the phone book under construction. Suggested businesses:

   a. Knox Blocks
   b. General Shale
   c. Knox Ready Mix Concrete

Call the Knoxville Home Builders Association for ideas, materials and guest speakers. 525-7156



4. Let a group of students make a vocabulary list of new terms learned from construction such as the following: By grouping these words alphabetically, the class could turn this into a glossary that could be used by others.

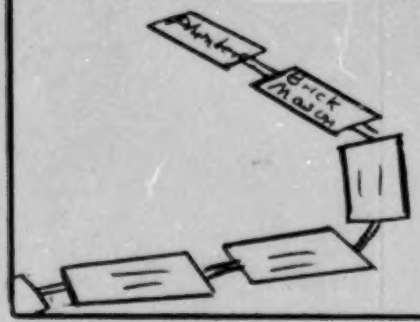
   a. Footer
   b. Joist
   c. Beam
   d. Rafters
   e. Eave
   f. Stud
   g. Spiking

   The words might be further divided into two groups: Those pertaining to supplying and those concerned with building.

Check the appendix for a more complete list of these words and their meaning page 64-67

Job Chain
(Language Arts)

Give each student a 3" x 5" card. On the card he or she writes the name of a construction worker. As each student finishes, the teacher checks to be sure no jobs are duplicated and then allows each student to tape his card on the chain with clear tape.



5. The class could make two lists for the bulletin board: local builders and local suppliers.

Builders	Suppliers
12	

SCOPE	ACTIVITIES	RESOURCES

III. **Concept:** Specialization leads to interdependency among construction workers.

IV. **Concept:** Positions are related within the construction cluster.

A. A construction crew is a team, and to get a house built properly each member of this team must do his job at the right time and do it correctly.

Anyone who has had a house built will have experienced the problems of delay. The concrete floor cannot be poured until the main water line is in. The water line cannot be installed until the city taps onto the main line, this can't be done until the paper work is complete, etc.

1. Students may better understand the role played by various construction workers and their dependency upon each other by hearing a story.

(Lang. Arts)

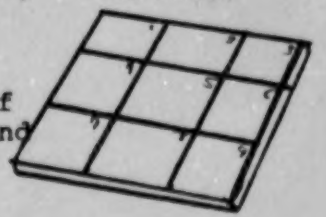
Debby's Playhouse

Debby's father works on a construction, and he has a big box of tools: hammer, saw, level, brace and bit, square, chisels, plain, common nails, finishing nails, etc. (Let the students identify each of these tools in a Sears and Roebuck Catalogue.)

One day Debby and her friends, Billy, Ted and Mary, decided to build a playhouse using some of her father's scrap lumber. First of all, they needed to draw a plan.

Tile Laying Activities

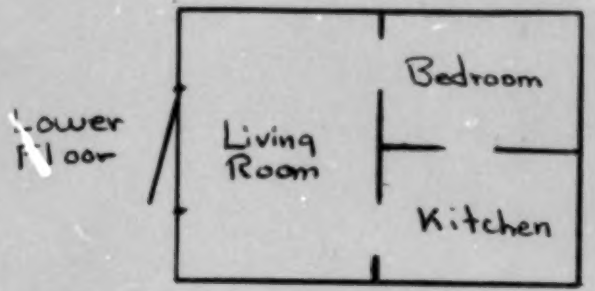
The teacher may secure floor tile, a piece of cardboard to lay it on, a putty knife, and a can of bonding compound through the the S.P.I.C.E. office.

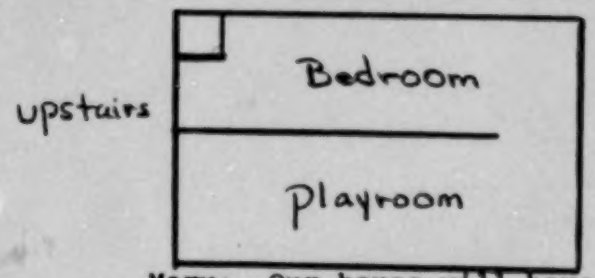


Cut the piece of tile into nine pieces and number them in position. Let students practice laying some tile.

What do we call the person who draws house plans? (Answer: an architect)

Billy decided to be the architect, and he drew a side view and a floor plan. What is a floor plan?





Let each student draw the floor plan of their own home or of a house they would like to build.

Mary: Our house will have two floors. Downstairs we will have a living room, a bedroom and a kitchen.

Debby: And upstairs we will have a bedroom and a playroom. Mary and I will decorate the house if you boys will build it.

Build A House

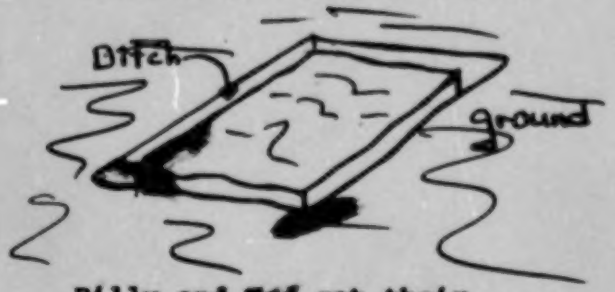
On lightweight cardboard draw a house.

Cut the cardboard into many pieces. Let the students put the house together again. If the teacher has extra cardboard, let the students work in groups of three or four and make their own house puzzle. They can swap with other groups.
(Art Activity)

Billy: Oh, no. We must all help build the house and decorate it. Girls should learn to build too. First of all, we will build the foundation.

Mary: What in the world is a foundation?

Billy: The house needs to set on something solid, so we dig out a ditch the same size as the house and fill it with concrete:



Billy and Ted got their shovels and went to work. When the ditch was finished, they mixed up concrete in an old tub and poured it into the ditch. They smoothed it off and made sure it was level. How did they make sure it was level?

Available at the S.P.I.C.E. office is a model of a house with foundation, etc. This can be brought to your class to demonstrate a house being built.

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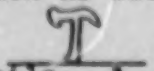
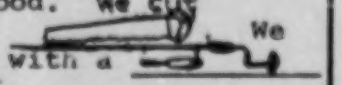
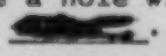
S.P.I.C.E. has a sample kit containing concrete which can be mixed with water and poured.

Fill in the Tool
(Lang. Arts)

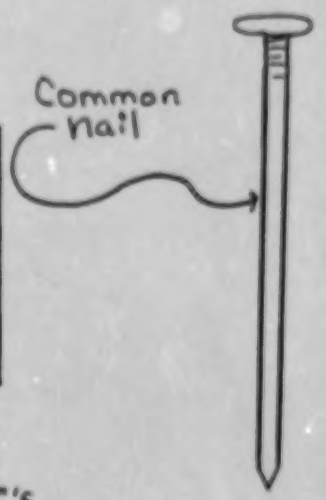
The teacher and students make this activity. From an old Sears Catalog cut out several tools that the class should be familiar with. Then write a description of each as follows:

A  is used to drive nails. A is used to smooth wood. We cut wood with a  We bore a hole with a  and [redacted].

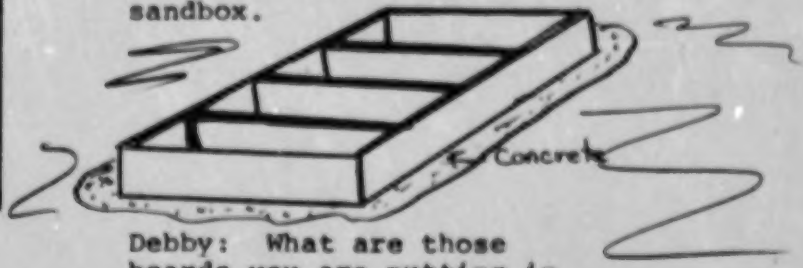
The pictures from the Sears Catalog can be glued in the proper place. The class could work in groups with each group doing its own. The teacher could gather these up and reproduce them on the ditto machine.

What is Concrete?
What is in it?
Where is it used?
What is cement?
Where is it used?

Concrete contains small gravels and more rock hardeners. It is used for sidewalks, highways, driveways, etc.
Cement contains more sand and is used for laying brick and block.



Billy: Now we are ready for the floor. We have to nail these big 2" x 8"'s into what looks like a sandbox.



Debby: What are those boards you are putting in the sandbox?

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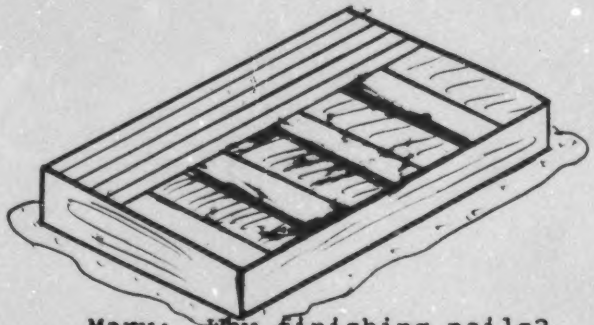
Ted: Those are what you call a floor joist. They hold the floor up.

Mary: Can I help put the floor down?

Billy: Sure. Girls should know how to hammer and saw too. Just place the boards longways and nail them to the floor joists with finishing nails.

Let students set their own dimensions for the playhouse. The class could vary these dimensions and produce a whole new set of problems.

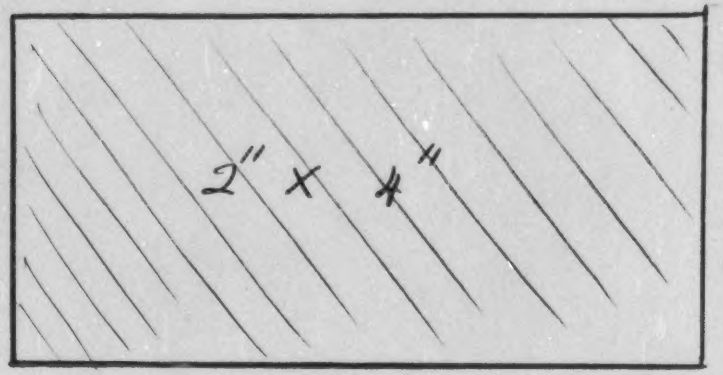
S.P.I.C.E. has a kit containing samples of 2" x 8", 2" x 4" floorboards and other materials used in this kit.



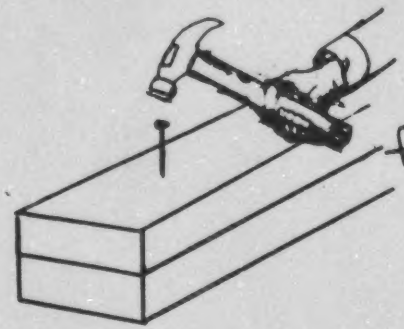
Mary: Why finishing nails?

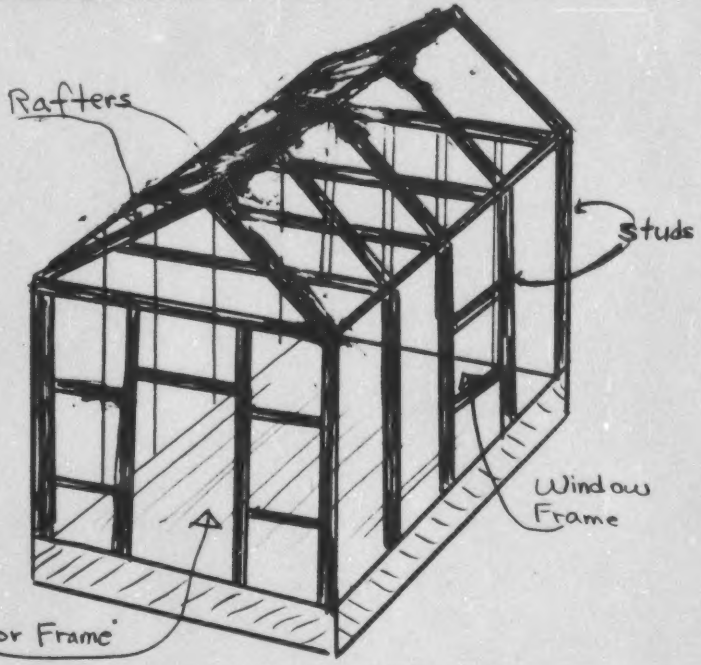
Ted: Because the head of the nail is smaller and will go down into the wood where you can't see it or hang your shoe on it.

Billy: Now we are ready for the side walls. Here is where we use 2" x 4"'s. This is how one looks on the end.



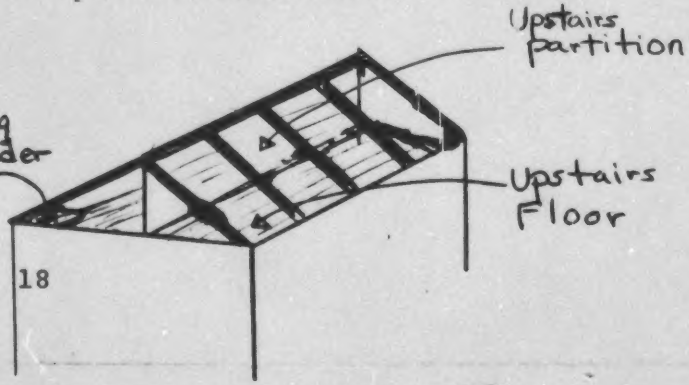
Nail two pieces of 2" x 4" together. Let each student have the opportunity to drive a few nails into the wood.



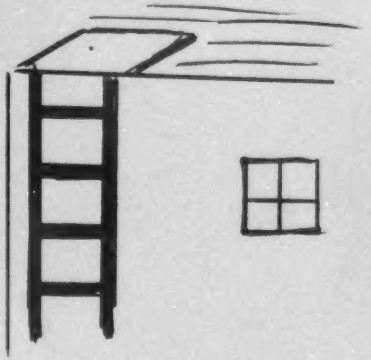


Mary: Oh, boy! We are ready to put the walls and roof on.

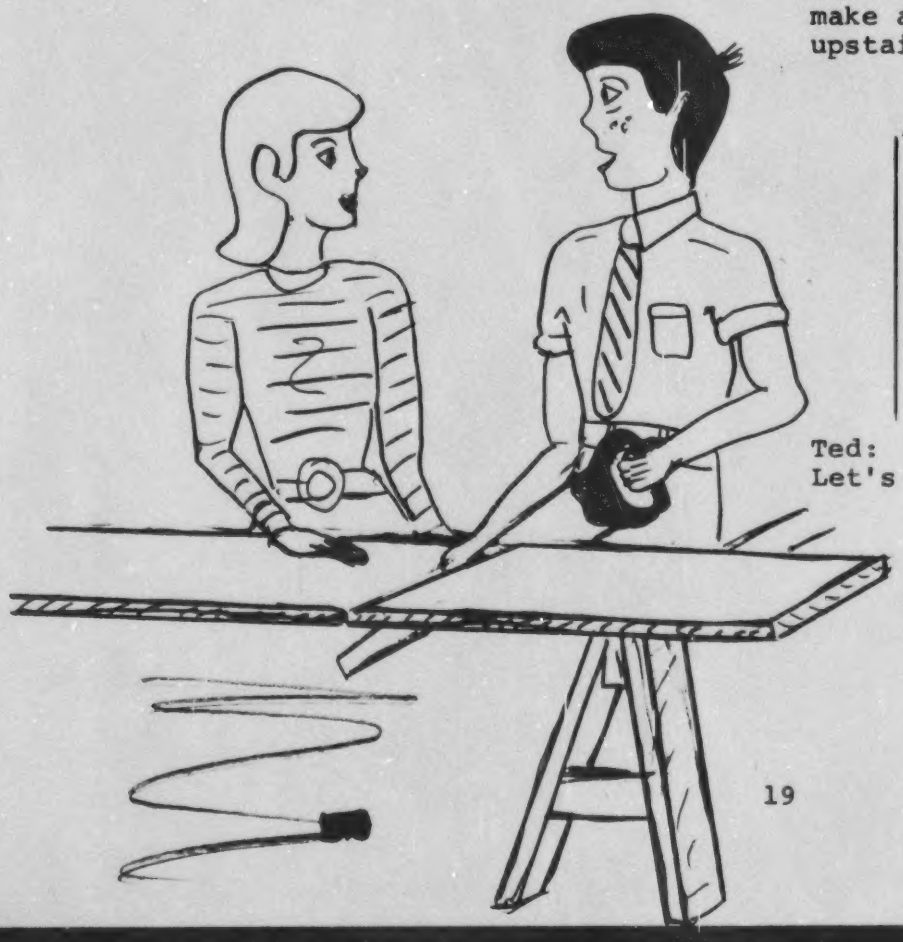
Ted: We have to put the partitions in and the upstairs floor first.



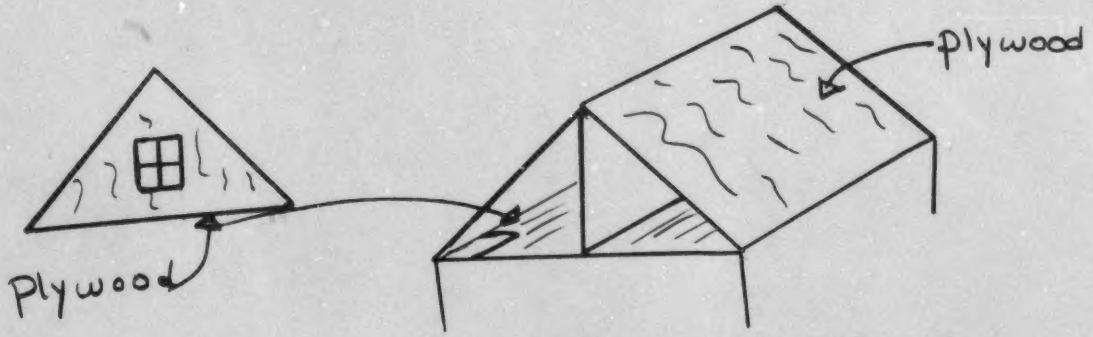
Scope	Activities	Resources
	Debby: What is a partition? Mary: I know what that is. Partitions are the walls between rooms. Debby: How do we get upstairs? Billy: We will build a ladder and nail it to the wall. Then we will make a hole in the floor upstairs to go through.	Book Building How and Why Book Reading Center

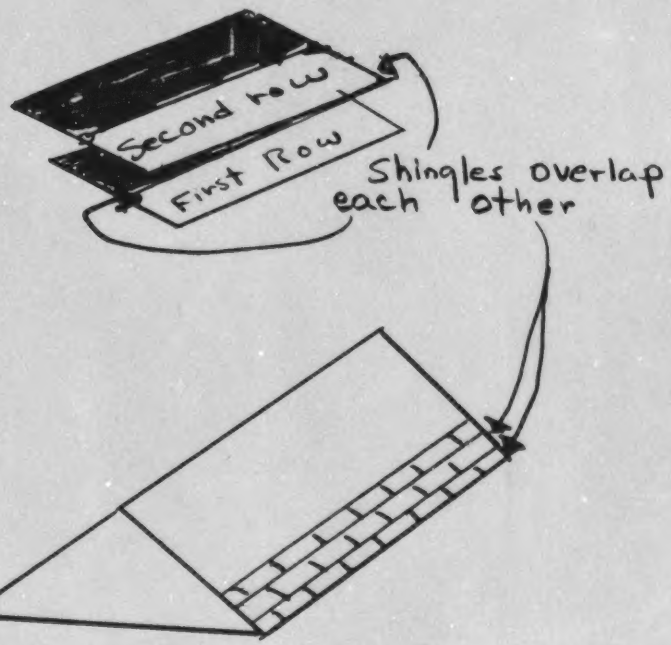


Ted: We are almost through. Let's put the roof on.



Billy: First, we cover the rafters with plywood and then we put on shingles.





The second row overlaps the first row, the third row overlaps the second row, etc.

Debby: The playhouse is finished. How are we going to decorate it? (Let the class plan the interior decoration of the house:)

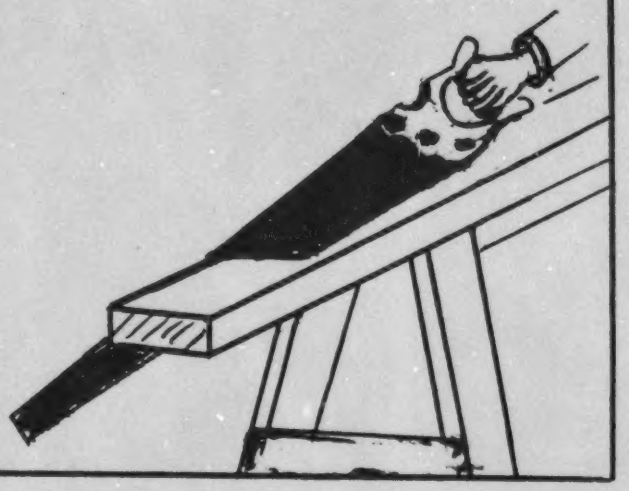
Carpet
Vinyl
Paint
Furniture

2. Let the students collect carpet and vinyl samples, brochures on colors of interior paints, samples of curtains (catalog), pictures or samples of congoleum, pictures of bathroom fixtures, furniture and appliances,

S.P.I.C.E. can help supply pieces of scrap carpet, vinyl, etc.

The teacher or students could visit a decorator shop and get samples of vinyl and carpeting. Sometimes they will give away some of their old sample books.

Using a 2" x 4" let each student have the opportunity of sawing off a piece of the wood. The teacher may need to help some students get the saw started.

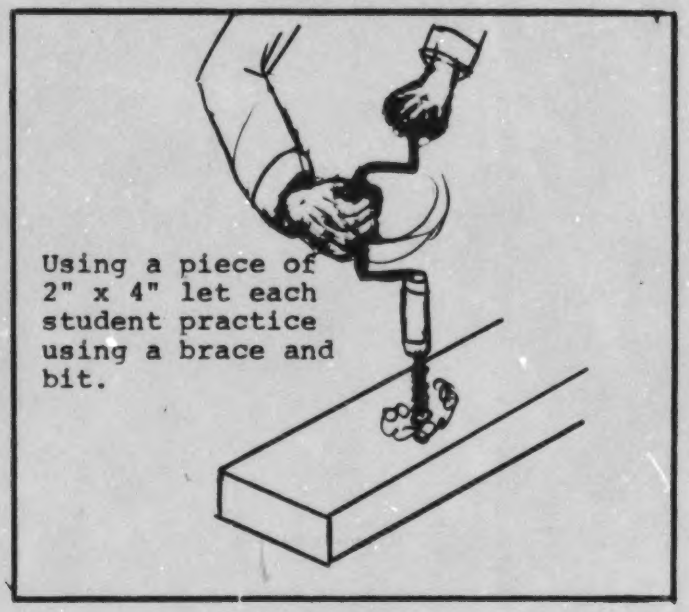


pictures or samples of paneling, etc.

3. Closely related to house building is mathematics. Let the students do practical math problems such as the following:

Math Activities

a. Measure the door frame and decide what size the door must be to fit.
b. Measure the windows and determine how many and what size windows will be needed.
c. Determine how much cloth will be needed to make curtains for all the windows.
d. Determine how many 2" x 8" x 10's will be needed.
e. Determine how many 2" x 4" x 10's will be needed.
f. Determine how much plywood will be needed. (Plywood comes in pieces 4" x 8".)
g. Determine how much wire would be needed to put lights in each room.
h. Determine how many light switches, outlet boxes and light fixtures will be needed to put one light switch, one light and two outlet boxes in each room.



Using a piece of 2" x 4" let each student practice using a brace and bit.

i. Determine how many boards ten feet long and four inches wide will be needed to cover the floor and ceiling.
j. Determine how much carpeting would be needed to cover the downstairs and upstairs floors.
k. Determine how much vinyl would be needed to cover all the walls.
l. Determine how much paneling would be needed for the familyroom and living room.
m. Determine how much paint would be needed to paint the house inside and out.
n. Determine how many bricks would be needed to cover the house outside.
o. Determine how many nails (common and finishing) will be needed to build the house.

4. As the students determine the amount of each item that will be needed to build the house, let them check with a local builder's supply store to see how much each

quantity will cost. The class, with the teacher's help, should be able to arrive at a total figure for building and decorating the playhouse.

5. Finally, discuss with the class the workers who help build a house and how they depend upon each other.

6. Let the students write about their parent's jobs and the workers they work closely with and are dependent upon.

V. Clusters are related.

Concept:	The construction cluster is related to other job clusters.

A. Students are aware of the fact that all construction workers depend to some degree upon workers in other clusters. Beginning in a limited way here, the cluster approach, which stresses the interrelationship and dependency of job clusters, will be taught. The purpose

"A Day in the Life of Tom Jones"

1. Tom Jones is a construction worker helping build a new hotel in our city. We want to follow Tom through his day to see how many other workers (other than construction workers) he comes in contact with and depends on.

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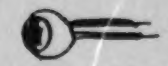
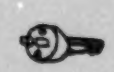
is to lead students to see how workers from various clusters relate to each other.

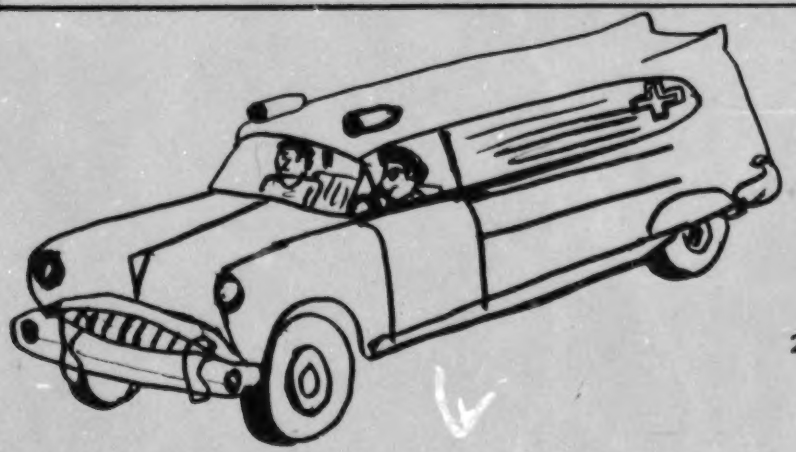
Language Arts: Collect newspaper articles dealing with construction and make scrapbook.
Math: Count the number of light bulbs in a house.
Science: Do study on the production of electricity Today's Basic Science, "Experimenting with electricity," pp. 185-208.
Art: Draw dam, steam plant.

Electricity Kit

The student wires the plug to the socket so that it looks like this.

Next the student screws in light bulb and then plugs it in.



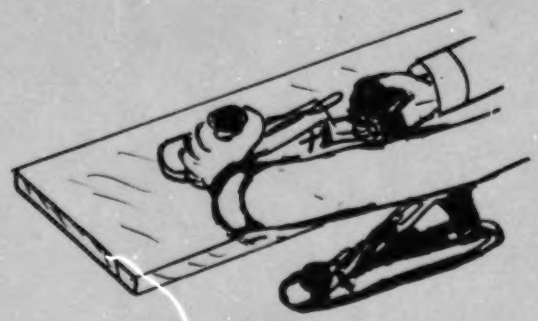
Tom Jones rises at 6:30 a.m. and eats breakfast at 7:00 a.m. after shaving, showering and dressing. He leaves for work in his truck at 7:30 a.m. arriving at 7:45 a.m.

He spends his morning pouring concrete into giant pillars. He eats at a local restaurant at 12:00 noon and is back on the job at 12:30 p.m. During the afternoon Tom injures a finger and is treated by the company nurse who sends him on to the local hospital for a tetanus shot. He returns to his work at 4:00 p.m. At 5:00 p.m. he leaves for home and an evening made up of shopping at the

local supermarket and watching T.V. He goes to bed at 10:00 p.m.

Language Arts: Relate current music to work. Example: "Vincent" about the life of an artist.
Math: How many tons of concrete to pour a driveway.
Science: Continue with "Experimenting with Electricity."
Art: Using wire, do sculpture symbolizing electricity.

Let each student have the opportunity to use a plane to smooth rough places on a board.



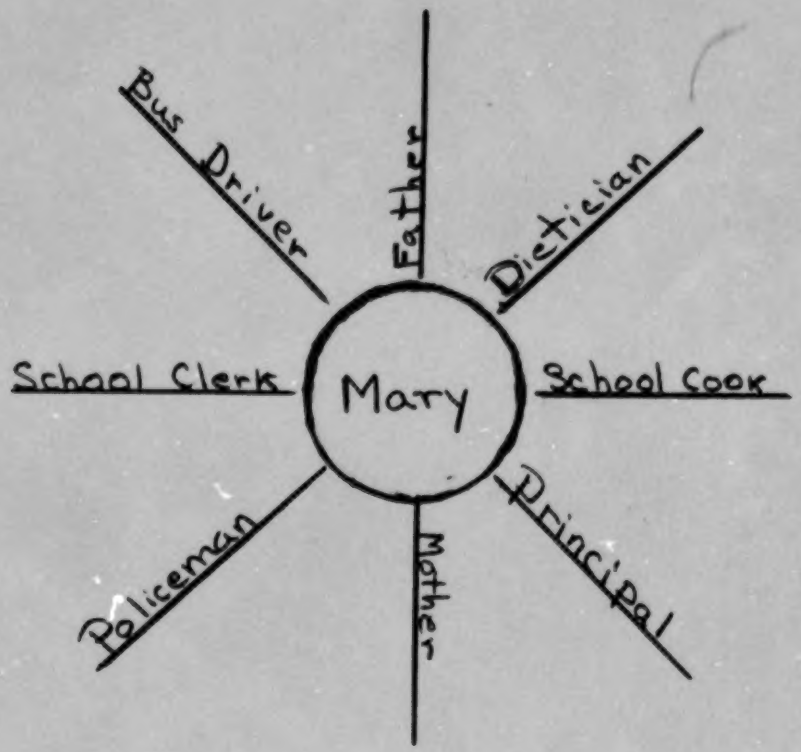
Who are some of the workers upon whom Tom Jones relies for his living.

Sample

a. Power company
b. Utility workers
c. Water works employees
d. Garbage collectors
e. T.V. workers and actors
f. Automobile manufacturers
g. Gas station workers
h. Restaurant waiters and waitresses
i. Doctor, nurse, orderly
j. Factory workers

2. Let each student outline his father's or mother's day indicating the different workers that he or she is dependent upon.

a. When they get up
b. Time they leave for work
c. How they go to work



d. Where their parent works
e. Where their parent eats lunch
f. The other workers they work with in doing their job
g. When the parent comes home
h. Stops made on the way home for shopping, etc.
i. What parent does at home after work
j. Time for the evening meal
k. Watching t.v. or other
l. Going to bed

3. Let the students name the workers who help them each day - at home, on the way to school and at school.

4. Let the student draw a job wheel. The student is in the center and the workers listed under # 3 above are the spokes.

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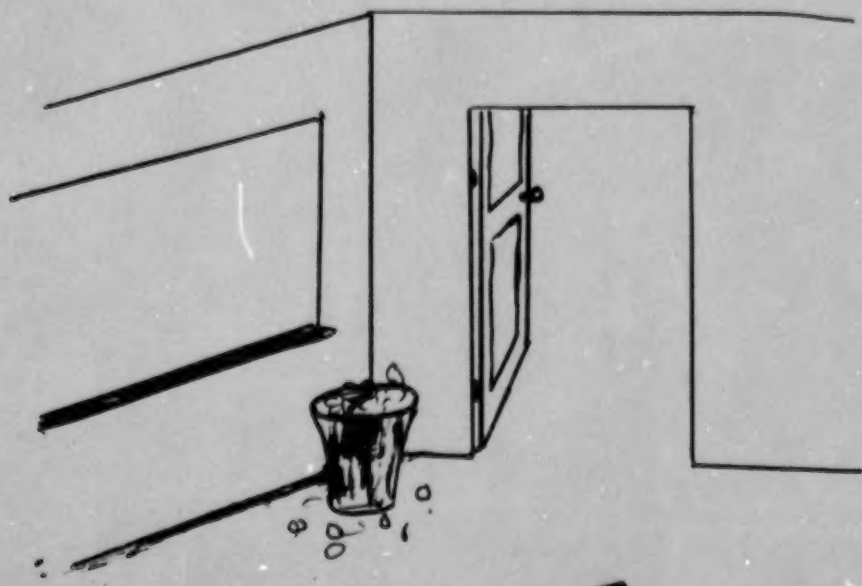
Language Arts: List television programs "Room 222", "Medical Center", etc. related to work or professions.
Math: Math involved with mining marble. Let students investigate.
Science: Suggested: Today's Basic Science, "Rocks and the Earth," pp. 93-124.
Art: Use rock tumbler to smooth rocks for making jewelry.

SCOPE	ACTIVITIES	RESOURCES

VI. Supply and Demand

Concept: Supply and demand controls the number of workers going into the construction industry.

A. It is not unusual for more people to prepare to do jobs than are needed or can be absorbed. This has been true of the professions in recent years. Because of the profiliration of new technology as well as new devices and equipment, many more workers are needed to repair and service this equipment than are available.



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Supply and Demand in the Job Market

1. The teacher can teach the principle of "Supply and Demand" through simulations or situations in the classroom.

   Example:

   The teacher can demonstrate supply and demand in the job market in the following way. On a sheet of paper list across the top jobs in the classroom that need to be done.

   a. Pick up paper
   b. Empty waste can
   c. Erase boards
   d. Clean erasers
   e. Take up lunch money
   f. Take messages
   g. Straighten desks
   h. Put books back in shelf

   By letting students sign up for the job they would rather do, it will become clear how <u>supply</u> and <u>demand</u> works.

SCOPE	ACTIVITIES	RESOURCES

Demand - The number of workers wanting the job.
Supply - The number of jobs.

Language Arts: Set up a "What's New?" corner on the bulletin board where students report new construction activities in the community.
Math: The number of gallons of water used by the school each day. Convert to quarts, pints, etc.
Science: Continue with "Rocks and the Earth."
Art: Gather stones for use in art work - sculpture.

VII. Total life is affected.

Concept: Construction work affects the worker's total life.

Individuals' value system affects career choices.

A. Choosing a career is one of the three most important decisions a person ever makes. Choosing a mate and choosing a place to live are the other two. The career makes the man. It determines his life style, his tastes, his dress, his friends, and his residence. In order not to be disappointed in a career, a person must balance three things:

Guidance Activity

Value Determination Survey

To the Teachers:

1. The following form is a self-awareness test. It is not meant to do anything more than give the students practice in the process of balancing the three Life-Career factors. It is not meant to direct them toward any career.

What I Want to be

A. I would like to be (list jobs or careers)

a. _____

1. Ambitions
2. Likes and dislikes
3. Abilities

If anyone of these is ignored in selecting a career, the person may never be entirely happy. Balancing these three is known as developing self-concept or self-awareness. Unless he is willing to acknowledge his likes and dislikes honestly and unless he is willing to admit and accept his limitations, he may never find the right career. An imbalance in these three life-career factors causes some people to be constantly changing jobs.

b. _____
c. _____
(In order of preference)

B. My family would like for me to be (list jobs or careers)

a. _____
b. _____
c. _____
(In order of their preference)

C. To be what I want to be I expect to go to school _____ years: elementary, high school, college.

D. I plan to make $_____ per year.

My Likes and Dislikes

A. I would like to live

_____
(Indicate where you would like to live)

B. I would like to belong to the following clubs and organizations

_____
_____

C. I would like to get married early and have a home of my own.

Yes_____No_____

SCOPE	ACTIVITIES	RESOURCES

D. I would like to start working as soon as I can, so I can buy a new car.

Yes_____No_____

E. I would buy a new car on credit.

Yes_____No_____

F. I would work and save up my money and then buy a car.

Yes_____No_____

G. I would like to live in a house costing $_____.

H. I would like to drive _____ car. (Name of car)

I. I would like to go to _____ on vacation, for _____ days each year.

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Language Arts: Discussion of the Values Determination Survey.
Math: Let students add up their allowance for a year. Let each student divide this by twelve to see how much allowance he or she gets per month.
Science:
Art:

My Abilities

A. I would like to complete _____ years of schooling.

I feel that I can successfully complete the number of years I have indicated with good marks.

Yes_____.
No_____
Not sure_____

I think I can do well in college.

Yes_____
No_____

I would prefer not to go to college but to a training school.

Yes_____
No_____

Four years of college is too long to stay in school when a person could be working and earning money.

Yes_____
No_____

I would like to work part of my way through college.

Yes_____
No_____

My parents would like to pay for my college education.

Yes_____
No_____
Not sure_____

Conclusion:

The student should analyze his answers to see what would be best for him.

If any of the Life-Career factors are in conflict, such as a person who wants a job requiring a college degree when he has indicated that he does not plan to go to college, he or she should reexamine his values.

2. Let each student take a construction worker and trace his career on the following scales:

   a. Life style
   b. Tastes

SCOPE	ACTIVITIES	RESOURCES
	c. Dress d. Friends e. Residence 3. What is the most important thing in life? 4. What life-style is best for each person? Answer: The one that makes him happy! 5. Is one any more important than the other?	

Language Arts: Have students keep abreast of current legislation relating to work and report on same.
Math: How the employer allocates his money: how much to wages, to upkeep, to rent, to overhead, to secretaries, etc.
Science: Suggested: Today's Basic Science, "Living Things at The Seashore," pp. 165-183.
Art: Use sea shells to make art object.

VIII. Different types of construction work.

Concept: Individual construction workers differ in their abilities, attitudes, and values.

Students often think of the construction worker as the man laying bricks or painting. Actually, there are construction	1. From the list of construction jobs listed in the appendix, let students categorize a number of jobs	Taylor's chart of abilities is contained in the kit in the appendix.

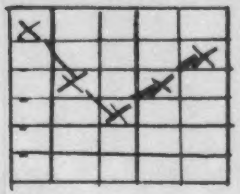
SCOPE	ACTIVITIES	RESOURCES
jobs requiring all degrees of abilities and training. There are construction jobs for workers who work especially well with their hands but who have little education. These workers may become plumbers, carpenters, or painters. Other jobs require both ability with the hands plus specialized training.	according to Taylor's chart of abilities. 2. It should be stressed that there should be no more importance attached to one ability than to the others. 3. Let students determine their own combination of abilities on the Taylor's chart of abilities.	

ASSESSMENT OF SELF-CONCEPT

CHART OF ABILITIES

To complete this evaluation on each student at the end of the year, mark an x in the appropriate boxes and join them with a straight line.

Sample:



Student's Name _____

	Decision Making	Manual Skills	Planning and Organization of Skills	Creativity and Inventive Skills	Academic Skills	Self-Concept	Career Maturity	Artistic Ability
Excellent								
Average								
Poor								

To be placed in the CR-2 folder

These workers may become electricians, cabinet makers, air conditioning specialists, bricklayers, or interior decorating specialists. They usually go to a trades school.

Still other jobs require more education and less ability with the hands. Interior decorators, engineers, designers, architects, mechanical drawers, and blueprint readers may be college educated people, yet they are construction workers also.

4. Discuss great people in history who have combined various abilities and occupations.

   a. Frank Lloyd Wright
   b. Buckminster Fuller
   c. Leonardo De Vinci

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Construction Workers

*1. Bricklayer
2. Carpenter
*3. Framer
*4. Roofer
*5. Electrician
*6. Plumber
7. Vinyl man
8. Carpet layer
9. Landscaper
*10. Designer
11. Architect
12. Real estate broker
13. Contractor
14. Builder's supply operator
15. Hardware store operator
16. Clerk
17. Secretary
18. Bookkeeper
19. Interior decorator
*20. Painter
21. Draftsman
22. Architect
23. Sawmill operator
24. Bulldozer operator
25. Footer digger
26. Block layer
*27. Sander
28. Stonemason
29. Sheetmetal worker
*30. Riveter
31. Rivet catcher
32. Concrete man
33. Asphalt man
*34. Foreman
35. Reinforcing-steel-placing-foreman
36. Filter
37. Air conditioning installer
38. Air conditioning repairman
39. Boiler maker
40. Boiler repairman
41. Cabinet maker
42. Floor finisher
43. Floor framer
44. Roof framer
45. Mobile home builder
46. Trim installer
47. House siding installer
48. Salesman
49. Advertiser
50. Pneumatic - Tool operator
51. Assembline - Production line
    (a) Channel installer
    (b) Frame assembler
    (c) Hardware installer
    (d) Kick-plate installer
52. Awning - Frame maker
53. Welder (arc)
54. Frame cutter
55. Gas welder

49

(The jobs with an asterisk beside them are the answers to the hidden word puzzle.)

56. Welder apprentice
57. Braze-welder
58. Buffing machine man
59. Circuit-breaker foreman
60. Electric-repair foreman
61. Electric-repair supervisor
62. Special inspecting-and-testing foreman
63. Transformer assembly foreman
64. Hod carrier
*65. Cable man
*66. Lineman
67. Line foreman
68. Meterman
69. Construction checker
70. Property appraiser
71. Cable splicer
*72. Plaster man
*73. Sheetrock man
*74. Glass tinter
*75. Sander
*76. Spiker
77. Taper
78. Floorer
79. Dope foreman
80. Joint foreman
*81. Waterproofing foreman
82. Metal sprayer
83. Calker (metal)
84. Wood calker
85. Dope pourer
86. Mastic man
87. Pipe tarman
88. Concrete-stone finisher
*89. Stone cutter
*90. Concrete gun operator
*91. Cement mason
*92. Grouter
93. Grouter helper
94. Stone and concrete wa
*95. Concrete finisher
96. Care-driller foreman
97. Labor-gang foreman
98. Backfilling foreman
99. Ditching foreman
100. Ditcher
101. Horizontal-earth-bori machine operator
102. Shield runner (operat
103. Erector operator
*104. Hydraulic man
105. Hydraulic operator
106. Graderman (bulldozer)
107. Scraper (bulldozer)
108. Crawler-tractor opera
109. Fine-grade-bulldozer
110. Suffler
*111. Pipe layer
112. Dredge leverman
113. Dredge operator
114. Mucking-machine opera
115. Power-shovel operator
116. Back-hoe operator
117. Convertible-power-sho operator
118. Diesel-power-shovel o
119. Duck-bill operator
120. Electric-power-shovel
121. Gasoline-power-shovel
122. Skimmer-scoop operato
*123. Rock drill operator
124. Stripping-shovel oper

elder apprentice
raze-welder
uffing machine man
ircuit-breaker foreman
lectric-repair foreman
lectric-repair supervisor
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od carrier
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roperty appraiser
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etal sprayer
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astic man
ipe tarman
oncrete-stone finisher
tone cutter
oncrete gun operator

*91. Cement mason
*92. Grouter
93. Grouter helper
94. Stone and concrete washer
*95. Concrete finisher
96. Care-driller foreman
97. Labor-gang foreman
98. Backfilling foreman
99. Ditching foreman
100. Ditcher
101. Horizontal-earth-boring machine operator
102. Shield runner (operator)
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118. Diesel-power-shovel operator
119. Duck-bill operator
120. Electric-power-shovel operator
121. Gasoline-power-shovel operator
122. Skimmer-scoop operator
*123. Rock drill operator
124. Stripping-shovel operator

125. Tower-excavator operator
126. Trench-digging-machine operator
127. Sewer-bottom man
128. Crushed-stone grader
129. Pile driver
130. Jetting machine operator
131. Sewer foreman
*132. Well driller
133. Blade-grader operator
134. Elevating-grader operator
135. Motor-grader operator
136. Septic tank installer
137. Subgrader operator
138. Utility tractor operator
*139. Ditch digger
140. Pipe layer helper
*141. Driver

BULLETIN BOARD IDEAS

1. Cover section of bulletin board with a piece of white flannel. Pieces of house, yard, trees, etc. are cut from felt. The flannel could be left all year with different sceens from job cluster represented.

2. Different types of nails and where each is used.

3. Hats of different construction occupations.

4. Name local builder suppliers and indicate areas served around Knoxville.

5. List of new jobs associated with construction. Often each have card telling about the job, requirements, pay. Could do one showing jobs that are going out.

6. Draw pictures of various construction workers and tack to bulletin board with title of job.

7. Show worker in hospital. Name of worker and clusters involved in getting and keeping him there.

8. Idea for poem "Roofer Goofer."

9. Idea for a job well done. Caption: "Did I Make All This Gold? I Mean, I Made All This Gold."

10. Idea for bulletin board on plumbing.

11. Display of tools used by carpenter could have a different bulletin board for different workers: plumber, electrician.

12. Tack to bulletin board - use piece of balsa wood to represent various parts of house. Label.

13. Get brochures from heavy equipment companies. Display various types of road construction equipment as bulletin board.

14. Show other workers the carpenter or some other construction worker must depend upon.

15. Representing different types of building materials.

The teacher will want to add to this list:

1. *R. H. Eckert, Architect*
   2505 Kingston Pike
   Phone: 546-7441

2. Wood Agency Realtors
   146 Maryville Pike
   Phone: 577-2551

3. Home Builder's Association
   of Knoxville
   221 Clark NW
   Phone: 525-7156

Books Available On Construction
At The
Knox County Resource Center

Adler	Houses
Baker, Sam	Indoor and Outdoor Grow-it-book
Barr	How and Why Wonder Book of Buildings
Beck	First Book of Palaces
Boehn	Flower Arranging by Number
Bolian	I Know a House Builder
Brown	Two Little Gardeners
Bulla	Flowerpot Gardens
Burns	A World Full of Homes
Burton	The Little House
Calhoun	Katie John
Carleton	Indoor Gardening Fun
Carter	True Book of Houses
Case	The Story of Houses
Clymer	We Live in the Almont
Cooke	Fun-time Window Gardening
DeJong	Nobody Plays with Cabbage
Duviosin	House of Four Seasons

Ewald	Neighbor Flap Foot
Fenton	Plants for Pets
Fisher	The Architects
Fisher	Best Little House
Goodspeed	Let's Go to Watch a Building Go Up
Greene	I Want to Be a Carpenter
Hader	The Little Stone House
Haywood	Eddie's Green Thumb
Hofsinde	Indians at Home
Jackson	Homes Around the World
Kirkus	First Book of Gardening
Krauss	Carrot Seeds
Lamprey	All the Ways of Building
Leavitt	True Book of Tools for Building Construction
Lenski	Houseboat Girl
Liang	The Skyscraper
Morey	Let's Look at Houses and Homes
Neurath	Building Big Things
Norling	Pogo's House
Provus	How We Get Our Shelter
Schwartz	Old Cities and New Towns

Selsam	How to Grow House Plants
Shortall	John and His Thumbs
Taylor	Child's Book of Carpet
Unstead	British Castles
Werner	Houses
Wilkinson	Come to Work with Us in House Construction
Zim	Things Around the House

57

Roofer Goofer

He climbed on the roof
Like a cat.

There on the edge with
his hammer he sat.

He turned to his
partner Rink,

But before he could
wink,

Like a fish down the
sink

His hammer went
"Bink!"

His dentures went
"Dink!"

And the rose bush lost all
of its blooms!

58

Films Available
In
Knox County Material Center

Your Job: Fitting In
Coronet, 1969, 16 min., sh-c-ad
5054

Your Job: Getting Ahead
Coronet, 1969, 16 min., sh-c-ad
5052

Trees and Their Importance
EBF, 1966, 12 min., el-jh
446 (Color)

The Earth in Change: The Earth's Crust
EBEC, 1961, 16 min., el-jh-sh
5076 (Color)

Earthquakes and Volcanoes
BFA, 1957, 14 min., el-jh-sh
(Color)

House of Man II: Our Crowded Environment
EBEC, 1969, 11 min., el-jh-sh
1223 (Color)

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Other Activities:

(a) The group might get samples of vinyl from a local decorator and make a scrapbook with it.

(b) Samples of carpeting could be collected and glued to a board to be displayed to the class.

(c) This group might arrange a field trip to a local interior decorator.

(d) The group might invite an interior decorator to speak to the class. The decorator might also bring some of the tools of his trade to show the class.

(e) The students could write a story about how they would like to decorate a room.

(f) The more imaginative students might turn this into a work of creative writing.

(g) Prepare report to be presented to the class.

(h) Make list of films, books, magazines, filmstrips, and slides dealing with decorating. This information might be obtained at the local library and school materials center.

(i) Prepare bulletin board of cut outs from decorating magazines.

(j) Role-playing.

(k) Write companies asking for information.

Evaluation
3-4

1. The student will be able to name five fields of construction and tell something about each.

2. Student will be able to name five workers who build and five who serve or supply the builder.

3. Student will be able to discuss the interdependency of workers on a house and how these jobs interrelate.

4. The student will be able to take five jobs from the construction clusters and relate them to other clusters.

5. The student will be able to take his father's or mother's occupation and list five other job clusters upon which their father or mother depend.

6. The student will name three construction jobs which need more workers and three that need fewer workers.

7. The student will be able to discuss different areas in which one's job affects his life:
   (1) life style
   (2) tastes
   (3) dress
   (4) friends
   (5) residence

8. Student will be able to take a construction worker and list three other jobs he might be able to do with his skills.

Construction Kit

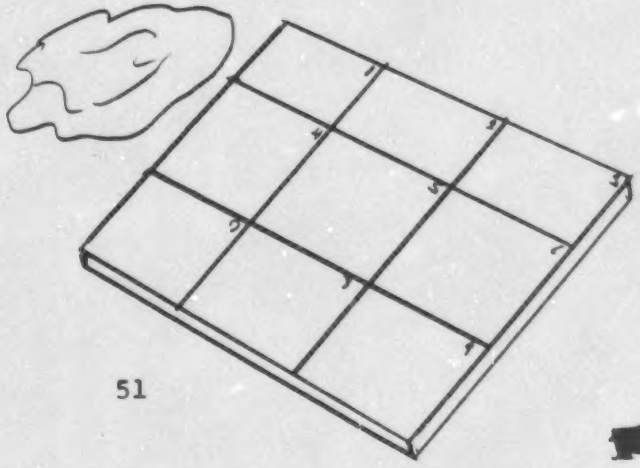
4 - 6

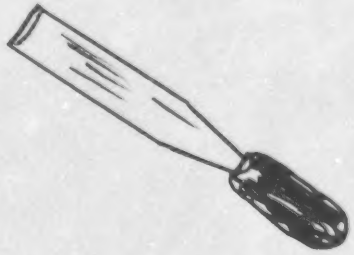
Purpose: To give the students the experience of handling and working with building materials.

Materials:
1. Piece of heavy cardboard 2' x 2'
2. Piece of bathroom tile
3. Bonding compound
4. Trowel or putty knife
5. Piece of scrap cloth

Procedure:
1. Place some bonding compound on cardboard with trowel.
2. Place tile in place and press down.
3. Continue until several pieces of tile are in place.

For the above materials call S.P.I.C.E.
Phone: 525-7686





Electricity Kit 3-6

Purpose: To give students the experience of handling and working with electrical materials.

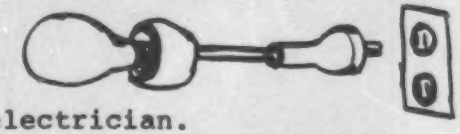
Materials:
1. One outdoor light socket
2. One light bulb
3. One plug
4. Screwdriver

Procedure:
1. Take the two wires from the outdoor socket and run them into the plug.

2. Affix one wire to each side of the plug and screw down securely.

3. Place cover on plug.

4. Screw light bulb into outdoor socket.
5. Plug whole thing into outlet. Light should burn.



You are now an electrician.

For the above materials call S.P.I.C.E.
Phone: 525-7686

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Construction Kit for Plumbing

3 - 6

Purpose: To give the students the feel of working with plumbing materials and tools.

Materials:

1. One faucet (outdoor) 1/2 inch
2. Two galvanized plugs 1/2 inch
3. Two pipe wrenches
4. One T-joint

Procedure:

1. Screw the two plugs into the ends of the T-joint.

2. Before screwing faucet into the top of the T-joint, fill the T with water. Be careful not to spill it screwing on the faucet.

3. With the faucet on, shake the T-joint to see if there is a leak. If there is no leak, you are a good plumber. If there is a leak you need to tighten up more.

All of these materials may be obtained through your S.P.I.C.E. coordinator.
Call: 525-7686

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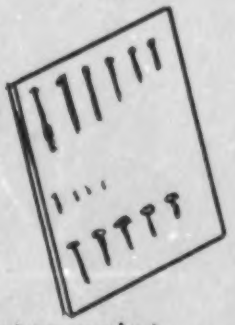
Construction Kit
3-6

Purpose: To teach students the different kinds and sizes of nails.



Materials:
1. Piece of heavy cardboard 2' x 2'
2. White or yellow latex paint
3. Black enamel paint
4. 2 inch brush
5. Assorted sizes of common and finishing nails
6. Scotch tape
7. Felt pen

Procedure:
1. Paint the piece of cardboard with white or yellow latex paint. Allow to dry.
2. Place various sizes of common nails on the board starting with the largest and going to the smallest. Tape in place with scotch tape.
3. Below do the same thing with finishing nails.
4. Under each nail write its type and size with felt pen.

For the above materials call S.P.I.C.E.
Call: 525-7686

Find the hidden construction workers. Their titles are written straight across, backwards, down, upside down, and diagonally. Circle each one you find, but do not cut corners. Each possible answer is indicated by an asterisk on the pages of construction workers.

C O N C R E T E G U N O P E R A T O R F P K N N A M E L B A C
K T B U F N A M E R O F G N I F O O R P R E T A W W R R K P D
J S A T E R F M W R T H V J T J O E Q E E C M B P E N Q J L C
I R N S N Q E L S T O N E C U T T E R D K B L A L N M R I U B
H N A R D A D K V G S T U I S I N D P R L A K L O A L E H M A
G A M Q C P M J U F R G A H R H M C E C A Z I Z N I K H G B Z
F M C P F O R E M A N F T R Q G L K O B C R J Y M C J S F E R
E K I O R R C I R F Q E S G E F I B N A D N I X L I I N E R O
D C L N E O E H R O O F E R P P K A M L O Y A W K R H N D Y T
N O U M D R B T T E F D R F S E O Z L Z N X H M J T G I C X A
A R A L N N E G N D P R Q E O D D E S I G N E R R C F F B W R
M T R K A M A P S E O C E D N C W Y N Y M W G V I E E E A V E
R E D J S L Z Y A O P B P W M R R X L I N E M A N L E T E Z U P O
E E Y I B G R O U T E R O C E B E W L X H V F U H E D E Y T S L
T H H H A K E X R B N A A G R S T V K W L C E T G V C R M S L I
S S Z C Z J V W R B M Z G C E A N U J V K U A S F U B C X R Q
A Q Y G T R I E Q A L I N B T Z I C E M E N T M A S O N W V P R
L P X F E I R V P Z D Y M A N Y T T I U J T D R G T A O C U O D
P O W D Y O D U O H K X L Z I X S S R I V E T E R N Z C P T N K
C N L E O I E T C Y J W K Y A W S R H T I S C Q E S I P T S M C
B E V L X H L T R E S I A R P P A Y T R E P O R P R Y T S T L O R
W M F D W G I S N X I V J X L V L Q G S H R B P D Q X O T M E
A L U C V D P I P E L A Y E R U G P F R G Q A O C F R A M A J
B R I C K L A Y E R H U I W K R E D N A S T C E T I H C R

99

S.P.I.C.E.
YEARLY RECORD OF UNITS COVERED

1. Check the box for each cluster you have taught.
2. Write the page number for the page of the unit taught.

Student _____
Grade _____

Cluster	Teacher	Page	Teacher	Page	Teacher	Page	Teacher	Page	Teacher	Page	Teacher	Page	Teacher	Page
Transportation	K		1		2		3		4		5		6	
Personal Services														
Health														
Construction														
Communications														
Homemaking and Consumer Education														
Environment														
Manufacturing														
Business and Office														
Marketing and Distribution														
Agri-Business														
Hospitality and Recreation														
Public Service														
Fine Arts and Humanities														
Marine Science														

*Place in CR-2 File

S.P.I.C.E. UNIT CHECKLIST

Below check the column _____ that best expresses the degree to which you have taught the specific concepts set forth in your career education manuals:

	Very Little	Some	Extensively
1. Integrated career education into the total curriculum.			
2. Helped students recognize their abilities, ambitions, and limitations as they relate to a career.			
3. Helped each student see himself as important and necessary.			
4. Helped students develop an appreciation for all jobs.			
5. Helped students understand why work is desirable.			
6. Helped students understand why work is necessary.			
7. Helped students understand the changing nature of the world of work.			
8. Helped students relate their school work to the world of work outside the classroom.			
9. Helped the students see the importance of getting along with others.			
10. Helped students participate in hands-on activities that broaden their knowledge and increase their awareness of jobs.			

Activities for Integrating the Skills into the Construction Cluster

MATH

There are many opportunities in construction for basic mathematics: addition, division, subtraction, multiplication, and simple fractions.

1. Devise work sheets of computation problems of varying difficulty related to costs and prices in the construction cluster.

2. Discuss math skills used by workers in construction. Use role-playing activities to help illustrate the use of these skills. The teacher should be able to secure measuring tools such as rulers, squares, levels, etc. from her principal or S.P.I.C.E. coordinator.

3. Let students measure their own homes: length, width, height, etc. The teacher could do this in her own classroom.

4. Let students count the number of boards needed to cover the floor of their classroom. Let them check with a builder supply to see what this would cost.

5. If every student in the room contributed an equal amount, how much would each student have to pay to buy the flooring for the classroom?

6. Let the students count the number of windows and window frames in their classroom. The students could determine the cost of replacing these window frames. The students could count the number of individual window panes and determine the cost for having them replaced.

7. Nails are relatively inexpensive. The class could buy a pound of common nails and/or finishing nails and then count to see how many of each there are in a pound, 1/2 pound, 1/3 pound, 1/4 pound, 3/4 pound, 2/3 pound, 1/5 pound, etc. This would give experience in division and fractions.

8. Let the students count the number of light bulbs in their room (or school), check the wattage on each and determine how much total wattage the room uses, the school uses. Let the students also determine how much it would cost to replace these bulbs.

9. To practice fractions let students cut a piece of wood in half with the jigsaw. Next cut each half into fourth; then cut the fourth into eights, sixteenths, etc

10. Let students count the number of light sockets, wall outlets, and light switches in the classroom and prepare a cost estimate for replacing them. The teacher may obtain a catalogue from S.P.I.C.E. called Stanley Tools listing construction tools and equipment and giving prices.

LANGUAGE ARTS

1. Let the students write a composition describing their home. Have the students give specifics, such as number of rooms, baths, etc.

2. The students should prepare a vocabulary list of the new words introduced in the unit.

3. Have students read poem concerned with house or home.

4. Have each student write a cinquain about his home.

_____
_____
_____
_____

Example

5. Define vocabulary words and make a wall chart of them to help reinforce student learning. Also, use them in spelling games, oral activities and written work.

6. Utilize students' reading and note-taking skills in their doing research for individual reports. Stress the use of analytical reading abilities and summarizing techniques in doing the research.

7. Have the students share their research findings with other students reporting either in written form or in an oral presentation with a visual aid.

8. Initiate a class discussion of the importance of language arts and communication skills to the workers in construction. Devise role-playing activities that help to illustrate the use of these skills. (Ex. Home builder explaining to contractor how he wants his house built.)

9. Make out purchase order for building supplies. S.P.I.C.E. can supply purchase order forms for this purpose.

10. Let students write an ad for the ad section of a newspaper. This could be written as a "for sale" ad, a "for rent" ad, etc.

11. Let students write a letter to the Home Builder's Association of Knoxville asking for information on house building.

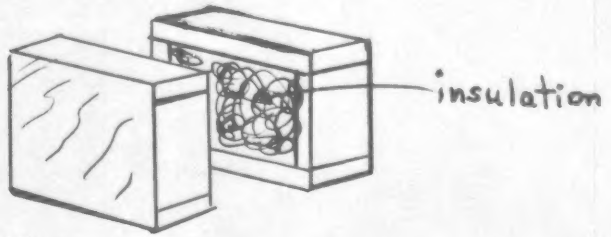
SCIENCE

1. Initiate a class discussion of the application of scientific knowledge and skills in construction. The class could concern itself with problems of heating and cooling, principles of safety in materials used in particular places in a house, problems of the effect of weather on types of material, and the scientific principle used in producing certain materials and products.

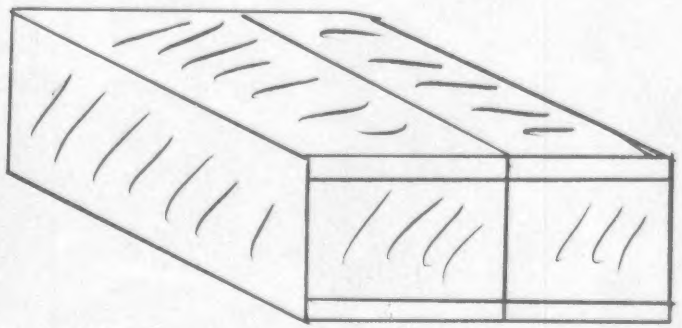
2. The students could lay out samples of various materials in the weather for a prolonged period of time to determine its effect upon them.

3. With the teacher's and principal's help the class could experiment with the flammability of various building materials.

4. The class could experiment with different types of insulation. This could be done by building two small sections of a wall.



Insulation is placed in both sections. Use an outdoor thermometer. Check and record the temperature. Place the thermometer between the two sections and press the two sections closely together.



Place in the sun, allow a set amount of time, say five minutes. Check and record temperature. Remove insulation and place in the sun again with the thermometer in place. Check temperature to see how much higher it will go in the direct sun. This gives an idea of the ability of the insulation to keep out heat. Replace insulation with other materials to get a comparison of the insulating ability of various materials.

5. Students could test durability of outside paint by painting a series of boards with different brands of outside paint and by exposing them to the weather for extended periods of time. A similar experiment can be conducted with interior paints and their washability. The question would be to determine how many times the paint could be washed without wearing the paint off.

ART

1. Students could practice drawing houses and coloring them in various combinations.

2. Students could study color combinations in carpeting, paints, cloth, vinyl, etc.

3. Students could study the principles of color combinations in interior decorating.

4. The students could practice art work using various types of paint used in interior and exterior painting.

5. Texture bag. Using a brown paper bag, place different types of fabrics in the bag. Let students reach in and take a piece and attempt to identify it, before taking it out.

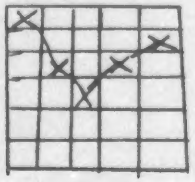
6. The students could make collections of fabrics to compare colors, texture, etc.

ASSESSMENT OF SELF-CONCEPT

CHART OF ABILITIES

To complete this evaluation on each student at the end of the year, mark an x in the appropriate boxes and join them with a straight line.

Sample:



Student's Name _____ Date of Birth _____
School _____ Grade _____

	Decision Making	Manual Skills	Planning and Organization of Skills	Creativity and Inventive Skills	Academic Skills	Self-Concept	Career Maturity	Artistic Ability
Excellent								
Average								
Poor								

To be placed in the CR-2 folder

Vocabulary Words for
Construction
3-4

Vocabulary Study - Let the students use the words provided in this vocabulary list, plus additional words of their own, and make a Construction Worker Dictionary. The students will need to carry out the following tasks:

1. Arrange all words alphabetically
2. Look up meanings of words that are not well known and write a definition for each word.
3. Draw pictures to illustrate words where possible.
4. Cut pictures out of old magazines; paste them in the dictionary to help define the words.
5. Design a cover and make up a title for the dictionary.

The following books available at the Know County Materials Center were used as resource books in compiling this vocabulary list:

Van Der Linde-Around the World in 80 Dishes
Dorothy Calliahan-Young America's Cook Book
Gladys Taber-My Own Cook Book
Perkins-The Fannie Farmer Junior Cook Book

Vocabulary for Construction

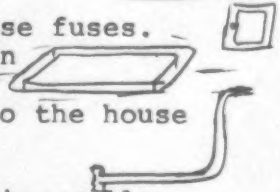
1. Mortar - mixed cement for laying brick or block
2. Hod carrier- person who carries cement to the bricklayer
3. Concrete - used for foundations, sidewalks, etc.
4. Cement - used for laying brick and block
5. Plumbing fixtures - faucets, sinks, etc. used in bathrooms

6. T-joint - used in plumbing

7. Monkey wrench -

8. Sheetrock - thin pieces of material used for covering walls
9. Spiking - filling nail holes and covering tape in sheetrocking
10. Taping - putting tape over joints (where pieces of sheetrock come together)
11. Ceiling joist - holds ceiling up
12. Conduit - piece that electric wire goes through

13. Breaker box - like a fusebox but doesn't use fuses.
14. Footer - concrete poured for the foundation
15. Floor joist - holds floor up
16. Water line - brings water from city line to the house

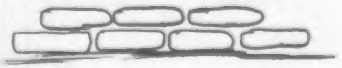


17. Paneling - thin wood or asbestos for covering walls
18. Bonding compound - used for laying floor tile
19. Floor tile - used for covering concrete floors as in basements

20. Pad - goes under carpeting
21. Thread cutter - apparatus for threading pipes in plumbing

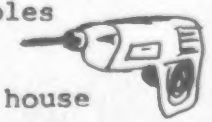
22. Apprentice - a worker who is learning as he works

23. Brickmason - lays bricks



24. Compass - used in drawing plans

25. Drill - electric drill is used for boring holes

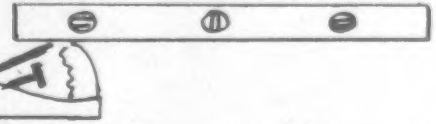


26. Framer - person who helps put up framing of house

27. Hack saw - used for cutting metal

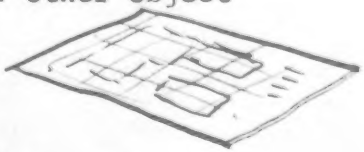
28. Hammer - used for driving nails

29. Level - used to see if something is level



30. Plane - used for smoothing off wood

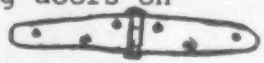
31. Plumber - person who installs water line, bathroom and kitchen sinks and fixtures
32. Blueprints - plan for building house or bridge of other object



33. Trowel - used for laying brick

34. Drafting - draftsman does drawings for architect
35. Architect - designs houses, bridges, etc.
36. Shingles - used for roofing house

37. Hinge - used to hang doors on



38. Wrecking bar - used for tearing down old houses, etc.

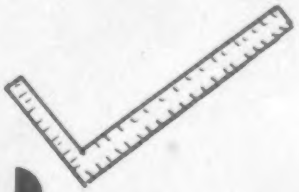
39. Shovel - used for moving dirt or sand

40. Brick set - used for tapping brick into place

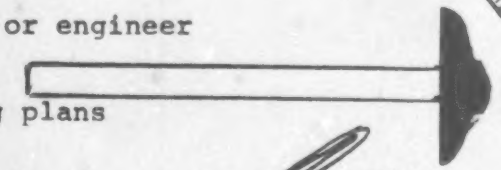
41. Masonry nail - used for driving into brick

42. Brick chisels - used for cutting brick

43. Framing square - used to see that joints are square



44. T-square - used by draftsman or engineer



45. Ruling pen - used for drawing plans

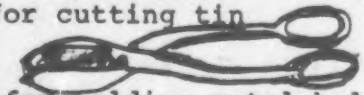
46. Pipe wrench - used to hold water pipe

47. Propane torch - used for heating water pipe

48. Soldering gun - used for melting solder

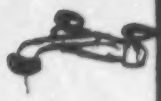
49. Bar clamp - used for gluing furniture together

50. Tin snips - used for cutting tin



51. Vice grips - used for holding metal bolts, etc.

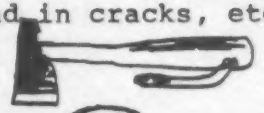
52. Faucet - used on sink for turning water off and on.



53. Sink trap - pipe under sink that may be taken out

54. Shingling hatchet - used for shingling house

55. Caulking gun - used to put caulking compound in cracks, etc.



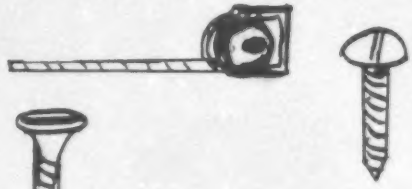
56. Roofing knife - used for cutting shingles

57. Step ladder - used for climbing on to work

58. Roofing tar - compound used to keep roof from leaking

59. Tape rule - used for measuring

60. Rounded-head screw



61. Flathead screw -

62. Phillips screw -